

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE THE APPLICATION OF)
Paul Matthijs) Examiner: Stephen G. Sherman
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SERIAL NO.: 10/719,881) Art Unit: 2629
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FILED: November 21, 2003) Customer No. 23644
)
FOR: Method And Device For Avoiding Image)
Misinterpretation Due to Defective Pixels In)
A Matrix Display)
)

RESPONSE TO OFFICE ACTION DATED JULY 3, 2006

Honorable Director of Patents and Trademarks
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office Action dated July 03, 2006, it is requested that the application be amended as follows:

In the Claims:

1. (currently amended) Method for avoiding misinterpretation of an image displayed on a matrix display due to defective pixels in the matrix display, the method comprising:
obtaining information on the presence of the defective pixels in the display, and
modulating the operation of the display so as to indicate, emphasize or warn for the presence of said defective pixels on the actual display ~~having defect pixels of said image~~, or adapting the image content of the defective pixels or of pixels in the neighborhood of the defective pixels so, as to indicate, emphasize or warn for the presence of said defective pixels in a copy of the displayed image.
- 2.- (original) Method according to claim 1, wherein, the copy is a hard copy or an electronic copy.
- 3.- (original) Method according to claim 1, wherein the information is obtained from data previously stored in a memory device.
- 4.- (original) Method according to claim 3, comprising, while displaying the image on the matrix display, supplying information on defective pixels to a user, based on the stored data.
- 5.- (original) Method according to claim 1, wherein, indicating, emphasizing or warning for the presence of at least one defective pixel comprises visually marking the at least one defective pixel on the display.
- 6.- (original) Method according to claim 1, furthermore comprising shifting the displayed image so that defective pixels are not located in a region of interest.
- 7.- (original) Method according to, claim 1, furthermore comprising shifting the displayed image so that a defective pixel is located in a flat image area.
8. - (original) Method according to claim 1, wherein the information on the presence of defective pixels is obtained by means of an image capturing device.

9.- (currently amended) A device for avoiding misinterpretation of an image displayed on a matrix display due to defective pixels in the matrix display, the device comprising:
an information retrieval device for obtaining information on the presence of the defective pixels in the display, and
a modulating device for modulating the operation of the display so as to indicate, emphasize or warn for the presence of said defective pixels on the actual display ~~having defect pixels of said~~ image, or for adapting the image content of the defective pixels or of pixels in the neighborhood of the defective pixels so as to indicate, emphasize or warn for the presence of said defective pixels in a copy of the displayed image.

10. - (original) A device according to claim 9, wherein the information retrieval device comprises a memory device where defective pixel information data is stored.

11.- (original) A device according to claim 10, comprising an information supply device for supplying information on defective pixels to a user, based on the stored data, while displaying the image on the matrix display.

12.- (original) A device according to claim 9, furthermore comprising marking means for visually marking the defective pixels on the display.

13. - (original) A device according to claim 9, furthermore, comprising a shifting device for shifting the displayed image so that defective pixels are not located in a region of interest.

14.- (original) A device according to claim 9, furthermore comprising a shifting device for shifting the displayed image so that a defective pixel is located in a flat image area

15.- (currently amended) A control unit for use with a device for avoiding misinterpretation of an image displayed on a matrix display, due to defective pixels in the matrix display, the control unit being adapted for controlling the obtaining of information on the presence and characteristics of the defect pixels in the display, and for controlling modulation of the operation of the display so as to indicate emphasize or warn for the presence of said defective pixels on the actual display

~~having defect pixels of said image~~, or adaptation of the image content of the defective pixels or of pixels in the neighborhood of the defective pixels so as to indicate, emphasize or warn for the presence of said defective pixels in a copy of the displayed image.

Remarks

1. The Examiner's reconsideration of the application is urged in view of the amendments above and comments below.

2. In the Office action, page 3, point 3, the Examiner has rejected claims 1, 9 and 15 (the independent claims) under 35 U.S.C. 102(b) as being anticipated by Lee et al. (US 2002/0000983). Reconsideration is requested.

An amended claim 1 is set forth above. In this claim the words "on the actual display having defect pixels" have been replaced by: "on the actual display of said image". This amendment is based on the specification, page 17, lines 12-13.

Amended claim 1 describes a method for avoiding misinterpretation of an image displayed on a matrix display due to defective pixels in the matrix display, whereby the method comprises:

- a. obtaining information on the presence of the defective pixels in the display,
- b. and modulating the operation of the display so as to indicate, emphasize or warn for the presence of said defective pixels on the actual display of said image,
- c. or adapting the image content of the defective pixels or of pixels in the neighborhood of the defective pixels so as to indicate, emphasize or warn for the presence of said defective pixels in a copy of the displayed image.

The subject matter of claim 1 is relates to the actual display of an image on a matrix display. Due to defective pixels in that matrix display, the displayed image can be misinterpreted and claim 1 describes in particular a method for avoiding such misinterpretation.

The Lee application relates to a method for examining the quality of a display device, in particular to a method for examining the quality in terms of good/fail of an LCD device (see paragraph [002]) in view of improvement of yield [0007]. *A priori* there is no image displayed on that LCD device. In reality, the Lee application describes a part of the production process of LCD devices, and there can thus be no misinterpretation of a displayed image. The method itself comprises a certain number of steps of inputting defect data for each process step followed by

another number of steps for automatically estimating and examining the defect [paragraph 0034]. The method is realized in an automated tester using a screen (shown in Fig. 2A to Fig. 2G) on which successive fields are displayed, each field corresponding with a step of the method. At the end of the method, good/fail of a panel is automatically obtained [paragraph 0070]. The goal of the method disclosed in Lee is thus completely different from the goal of the method in the present invention.

The first step in the method according to the invention (step a) concerns the obtaining of information on the presence of defective pixels in the display.

In the Lee application, pixel defects are called the individual defect and are also indicated by the terms “the defect degree of a pixel” [paragraph 0011]. The method proposed by Lee makes also use of the presence of such pixel defects, in particular in a step for inputting data on the degree of the defect for automatic examination [paragraph 0021] and [paragraph 0061]. This can be seen in field 5 of the successive fields, used in the automated tester [paragraph 0028].

In the next step of the method according to the invention (step b) the operation of the display is modulated in order to indicate, emphasize or warn for the presence of defective pixels on the actual display of the image. By display is here clearly meant the display of an image, i.e. the one which could be misinterpreted and which is displayed on the matrix display having defects (see the first lines of claim 1). Contrary to this, the screen shown in Fig. 2A to Fig 2G of the Lee application is a screen belonging to a tester and is not the screen having defective pixels. In the Lee application, there is no modulation of the operation of the display either. It can thus been concluded that feature b is not disclosed in the Lee application. This is an important point – as Lee is a calibration method, e.g. in the factory, there is no incentive to modulate the screen output so as to prevent misinterpretation. Thus Lee lacks one of the key elements of the method of the present invention and provides no hint or suggestion of it.

The last step of the method according to the invention (step c), which is an alternative step to step b, the image content of the defective pixels itself or of neighboring pixels is adapted in order to indicate, emphasize or warn for the presence of defective pixels in a copy of the displayed image. In the Lee application, there is no indication of an adaptation of any pixels of an image in order to

give a particular mark in a copy of that image. Lee only discloses the appearance of the position of a defect in a readable photograph, but no particular treatment of any pixel. It can thus also be concluded that feature c is not disclosed in the Lee application.

Accordingly, amended claim 1 is not anticipated by Lee et al.

Amended claim 9 is a device claim, drafted in a way which is completely analogous to amended method claim 1 (the same amendment has been introduced in claim 9). Amended claim 9 is thus also not anticipated by Lee et al. for the reasons given above in relation with claim 1.

Amended claim 15 relates to a control unit, to be used with the device of claim 9. Claim 15 has been drafted in a way which is completely consistent with amended method claim 1 (the same amendment has been introduced in claim 9). Amended claim 15 is thus also not anticipated by Lee et al. for the reasons given above in relation with claim 1.

Summarizing: All independent claims are thus not anticipated by Lee et al.

Amended claim 1 is also non-obvious over Lee et al. and also over Lee in view of Takanashi (US 6,806,870).

As already explained above, there are important and fundamental differences between the subject matter of claim 1 and the method according to Lee. Not only is the goal of the method of claim 1 totally different from the goal of the method according to Lee, but important features (b and c) of the method of claim 1 are not disclosed in Lee et al. The problem solved in claim 1 and the solutions given to that problem in claim 1 are so different from the problem and solutions given in Lee that the subject matter of claim 1 is submitted to clearly be non-obvious.

Takanashi teaches the use of a hard copy or an electronic copy of a displayed image. However, in amended claim 1 it is not the use of a copy of the image which is important, but the principle of marking of defective pixels in order to avoid misinterpretation of a displayed image. This principle not being disclosed in Takanashi, either, and thus claim 1 is also non-obvious over Lee in view of Takanashi.

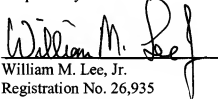
The same can be said in relation with independent claims 9 and 15.

3. All other claims being dependent claims, they are also believed to be novel and non-obvious, given their dependencies.

Given the above, it is submitted that the application is now in condition for allowance, and the Examiner's further and favorable reconsideration in that regard is urged.

August 29, 2006

Respectfully submitted,

A handwritten signature in black ink, appearing to read "William M. Lee, Jr.", is written over a horizontal line.

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